Fat in Canned Pet Foods

Scope

This method is used only for the determination of percentage fat in canned pet foods.

Summary

The sample is dried as per the moisture determination method. The sample is then extracted in a method similar to the direct ether extract method for 16 hours.

Comments

Review the methods for moisture determination, direct ether extract method for fat and the fritted glass crucible method for crude fiber prior to beginning this procedure. Crude fiber can be run on the residue remaining in the extraction thimble at the conclusion of this method. Start with step B of the fritted glass crucible method for crude fiber.

Apparatus and Materials

A. Extraction thimble.

B. Small mortar.

C. Desiccator.

D. Extraction cups.

E. Aluminum dish.

F. Oven.

G. Fat extraction apparatus.

Reagents

A. Anhydrous ethyl ether.

Procedure

A. Oven dry the weighed sample as in the moisture determination.

B. Carefully transfer the sample from the aluminum dish to a small mortar.

C. Pulverize the sample carefully and transfer it completely to an extraction thimble.

D. Dry the extraction cups for 30 minutes at 100°, cool in a desiccator and weigh to the nearest 0.0001 g.

E. Turn on the power switch on the service unit of the extraction system and allow it to warm up to proper temperature (100°) (20-30 minutes). Turn on the water to the extraction unit condenser.

F. Place the dried and weighed extraction cups in the cup holder.

G. Place the sample extraction mode knobs on the extraction unit in the "rinsing" position.

H. Insert the thimbles into the condensers by raising the holder into the condensers.

I. Move the extraction mode knob to the "boiling" position to pick up the thimbles and then move extraction mode knobs to "rinsing" position.

J. Remove the thimble support holder and center the thimbles if necessary.

K. Dispense 50 ml of dry ether into the sample cups and place the cups in a cup holder. Position the cups in holder on the hot plate.

L. Lower the handle on the left side of the unit ensuring that the safety catch engages.

M. Extract the samples by one of the following protocols.

1. Screening procedure.

a. Move the extraction mode knobs to the "boiling" position and

extract samples in boiling ether for 30 mintues. Make sure the condenser valves are open.

b. Move the extraction mode knobs to the "rinsing" position and allow to rinse for 1 hour.

2. Official procedure.

a. Move the extraction mode knobs to the "rinsing" position and allow to extract for 16 hours (overnight). Make sure the condensor valves are open.

N. After extraction (and rinsing), close the condenser valves by turning a quarter turn.

O. When almost all of the solvent is collected in the condenser, press the AIR button on the service unit and open the EVAPORATION valve on the extraction unit.

P. After the last traces of solvent are collected in the condenser, close the EVAPORATION valve.

Q. Release the extraction cups by raising the handle and remove the cups with the cup holder.

R. Place the thimble support holder in position on the hot plate and lower the handle.

S. Move the extraction mode knobs to let the thimbles slide into the thimble supports.

T. Release the handle and follow the upward movement with the support holder. Bend the holder and remove the thimbles.

U. If another extraction is to be performed immediately, insert a new batch of thimbles and cups.

V. Fill the solvent reservoirs on condensers to the top mark with dry ether using a syringe through the holes on top of the unit.

W. Open the condenser valves before beginning the next extraction.

X. Dry the cups and fat at 100^{o} for about 30 minutes, cool in a desiccator and weigh

to the nearest 0.0001 g.

Calculations

A. Subtract the weight of the cup from the weight of the cup plus fat to get the weight of the fat.

B. Divide the weight of the fat by the sample weight and multiply by 100 to get the percent of fat or ether extract.

Bibliography

Official Methods of Analysis (1984) 14th Ed., AOAC, Washington, D.C., sec. 7.062